



# *Rain Gardens*

## A how-to manual for homeowners

Compiled and distributed by  
the City of Lexington and  
Boxerwood Education Association

with support from the Valley of Virginia Herb Guild and  
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of the USDA Forest Service and the Virginia Department of Forestry

(some text and graphics adapted from a publication distributed by  
the Wisconsin Department of Natural Resources)

To the community:

For the past five years, the City of Lexington has been working with the community to restore the health of Woods Creek and its watershed. We have completed numerous projects – and more are underway or being planned – to address the creek damage being caused by continued development and the resulting increases in polluted storm water run-off. One of our primary strategies has been the construction of rain gardens on public property. This picture was taken during the installation of a rain garden adjacent to south Main Street, just north of the Rt. 11 by-pass.



These landscaped low spots do a remarkable job of reducing the volume of storm water run-off from parking lots, roofs and roadways, as well as filtering out the pollutants this run-off contains.

But the city can only do so much. Most of the storm water run-off contributing to our watershed's deterioration comes from privately owned property. If you and every other homeowner would accept responsibility for better managing the water that runs from your roofs, gutters, lawns and driveways, the impact would be dramatic.

So add a rain garden to your landscape. This manual will show you how. If we all roll up our sleeves and get to work, we can beautify our own yards as well as our community in ways that preserve and enhance the local natural resources we care about and rely on. Let's do it!

Bill Blatter  
Director of Planning and Development, City of Lexington

Friends,

If – within the boundaries of the land that we each own or are responsible for – we could hold and nurture the rainwater falling there with the same results the forest had 100 years ago, much of our community's flooding would end. Erosion would be minimized, streams would be cool and clean, wildlife would be healthy and we would be preserving our environment for today and many tomorrows.



At Boxerwood, we are working toward this goal. To date, we have established three rain gardens. In addition to their physical and practical functions, creating the rain gardens allows the Boxerwood Education Association (BEA) to engage local children in the planting process (pictured) as just one of our many hands-on environmental experiences.

Our rain gardens are in various stages of maturity, but all are functioning well to capture storm water run-off from our roofs and driveway. Each adds beauty to our landscape with its unique design and plant material.

If you are considering, planning, or just curious about a rain garden, we cordially invite you to stop by to see and learn from ours.

Hunter Mohring  
Executive Steward, Boxerwood Education Association

# Rain Gardens

## Your personal contribution to cleaner water

The first inch or two of water from a storm flushes the majority of pollutants from the area around your home directly into local streams such as Woods Creek, then into the Maury River and ultimately the Chesapeake Bay.

A rain garden can be as simple as a strategically sited and landscaped low spot in your yard where storm water from your roof (downspout) and parking area soak into the soil rather than leave your property as surface run-off. The rain garden fills with a few inches of water after a storm. The water seeps into the ground within a couple of hours, allowing the soil and plant roots to filter and neutralize the pollutants.



### Why are rain gardens important?

Rain is natural; storm water run-off from man-made impervious surfaces isn't. As residential subdivisions replace forests and agricultural land, storm water from increased impervious surfaces becomes a problem. Storm water run-off from developed areas increases flooding, carries pollutants from streets, parking areas and even lawns. Expensive storm water management structures are often required to address this problem.

By reducing storm water run-off, rain gardens can play a valuable role in changing these trends. While an individual rain garden may seem like a small thing, collectively they can produce substantial neighborhood and community-wide environmental benefits.

### Creating a rain garden helps you accept responsibility for increased run-off and pollution generated by your own house and yard, improving the environment in many ways:

- Increasing the amount of water that filters into the ground, which reduces surface run-off and recharges local aquifers.
- Helping protect against local flooding and drainage problems.
- Reducing the need for costly municipal storm water related structures.
- Helping protect local streams from the pollutants carried by local storm water run-off: lawn fertilizers, herbicides and pesticides, hydrocarbons from gas and oil, road salts and numerous other substances which wash off roads and other paved areas. Studies have shown that up to 70% of the pollution in our streams is carried there by storm water; about half of that pollution comes from things we do in our yards and gardens.
- Helping sustain adequate flows in streams during dry spells.
- Helping protect streams from damaging high water and reducing erosion of stream banks.
- Enhancing the functional beauty of yards and neighborhoods.
- Providing valuable habitat for birds, butterflies and many beneficial insects.

## Who should use this manual?

This manual provides homeowners and landscape professionals with the information needed to design and build rain gardens on residential lots.

Guidelines presented in this manual can also be used to treat roof run-off at commercial and institutional sites.

However, this manual should not be used to design rain gardens for parking lots, busy streets and other heavily-used paved areas where storm water would require pretreatment before entering a rain garden.

## Frequently asked questions

### Does a rain garden form a pond?

No. The rain water soaks in and the garden remains dry between rainfalls. (Note: Some rain gardens can be designed to include a permanent pond, but that type of rain garden is not addressed in this manual.)

### Are they a breeding ground for mosquitoes?

No. Mosquitoes need seven to ten days to lay and hatch eggs, and standing water in the rain garden will last for only a few hours after most storms. Mosquitoes are more likely to lay eggs in bird baths and storm sewers than in the sunny rain garden. Also rain gardens attract dragon flies, which eat mosquitoes.



### Do they require a lot of maintenance?

Rain gardens can be maintained with little effort once the plants are established. Some weeding and watering will be needed in the first two years, and perhaps some thinning in later years as the plants mature.

### Is a rain garden expensive?

It doesn't have to be. A family and a few friends can provide the labor. Once the soil has been prepared, the main cost will be purchasing the plants. Even this can be minimized by using some native plants that might already exist in your landscape or in your neighbors' landscapes.





## Creating your rain garden

This section of the manual covers rain garden basics – where to put the rain garden, and how big to make it, how deep to dig it, and how to deal with different soils and slopes. Following these instructions is the best way to ensure a successful rain garden project.



A comprehensive list of suggested plants native to this region follows the instructions.

### • • • • • Step 1 Sizing & Siting Your Rain Garden

If you already know the size you want your rain garden to be, then skip ahead to the section about building the rain garden. However, take time to read the pointers about location, and do find the slope of the lawn. If the location has a slope more than 12%, it's best to pick a different location because of the effort it will take to create a level rain garden.

#### Where should a rain garden go?

Home rain gardens will be beneficial in many locations, for example: near the house to catch only roof run-off, further out on your lawn to collect water from the lawn and roof, and in a location that collects run-off from your driveway.

- The rain garden should be at least 10 feet from the house so infiltrating water doesn't seep into the foundation.
- It may be tempting to put the rain garden in a part of the yard where water already ponds. Don't! The goal of a rain garden is to encourage infiltration, and your yard's wet patches indicate poor drainage.
- Do not place the rain garden directly over a septic system.
- It is better to build the rain garden in full or partial sun, not directly under a big tree or in a wooded area.
- Locating the rain garden in the flatter part of your yard will make digging much easier. For example, a rain garden 10 feet wide on a 10% slope must be 12 inches deep to be level unless you import top soil or use the cut and fill method (see diagram on pg. 12).



An extension of PVC pipe helps direct downspout water to this rain garden. You can use landscape elements to camouflage the pipe, or it can be run underground.

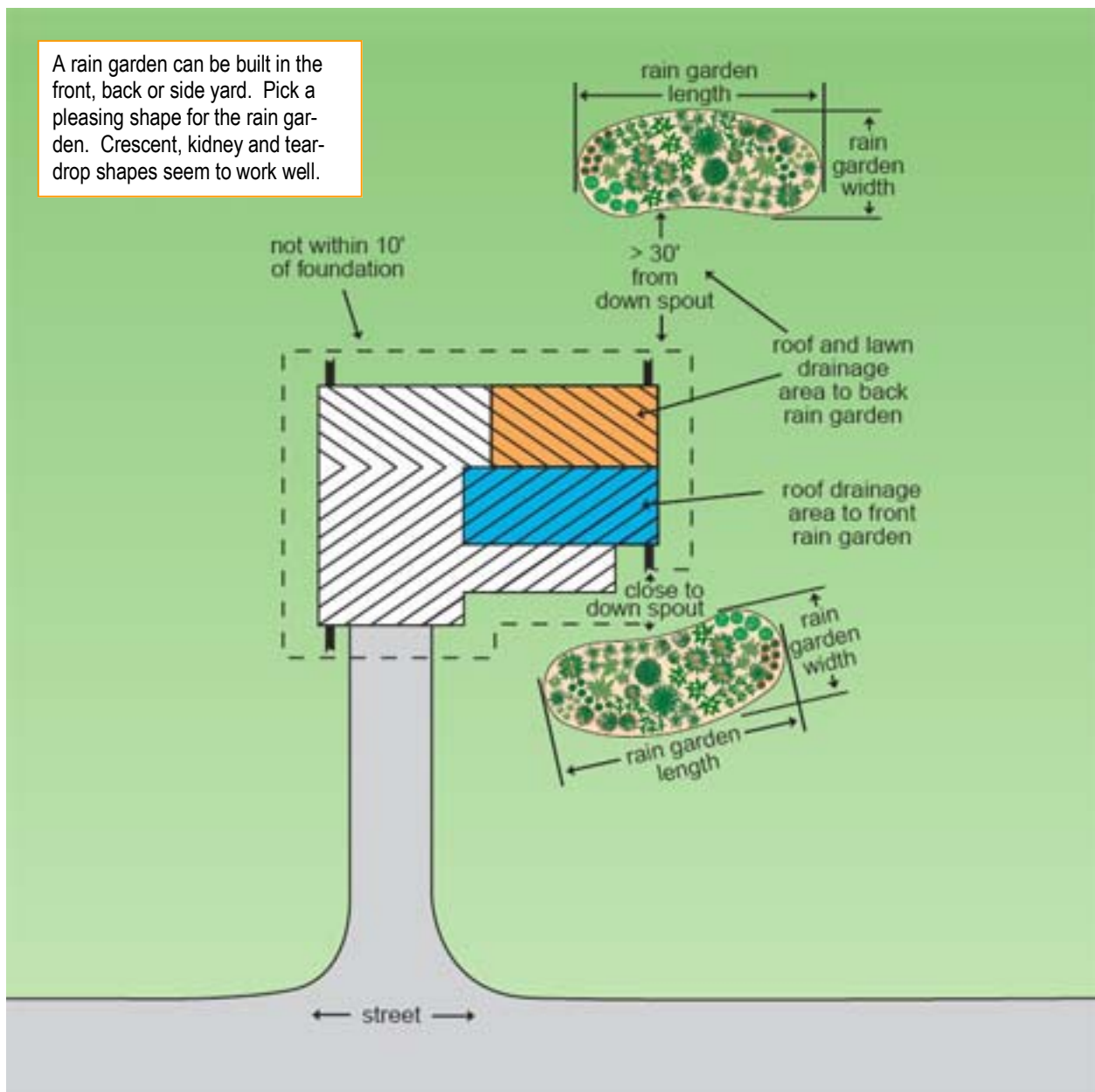


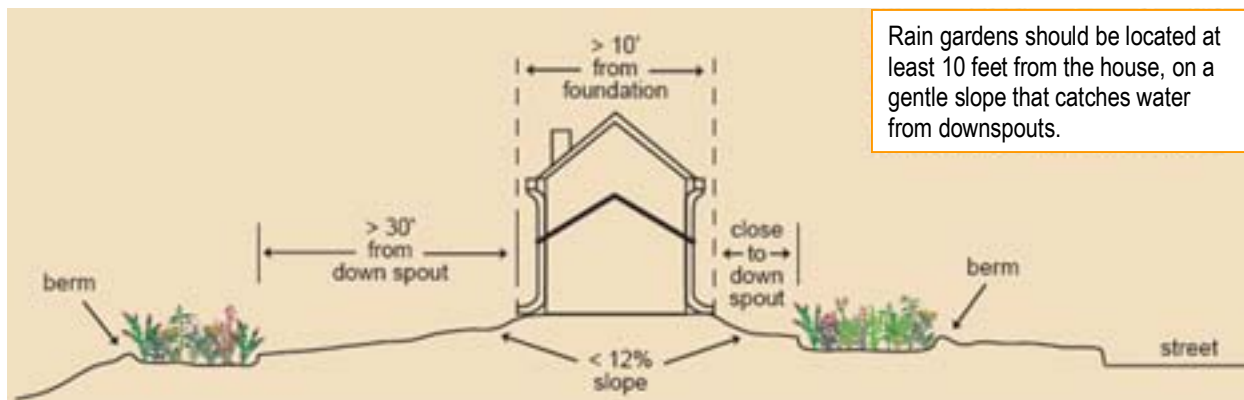
## Consider your overall landscape

When considering placement of your rain garden, design with the end in mind. Carefully consider how the rain garden can be integrated into existing and future landscaping. Also pay attention to views from inside the house as well as those

throughout the landscape. Determine how far or how close you want your rain garden to outdoor gathering spaces or play areas. Why not locate it near a patio where you can take advantage of the colors and fragrances for hours on end?!

A rain garden can be built in the front, back or side yard. Pick a pleasing shape for the rain garden. Crescent, kidney and tear-drop shapes seem to work well.





### How big should a rain garden be?

The surface area of the rain garden can be almost any size, but time and cost will always be important considerations in sizing decisions. Any rain garden size will provide some control. A typical residential rain garden ranges for 100 to 300 square feet. Rain gardens can be smaller than 100 square feet, but very small gardens accommodate limited plant variety. If a rain garden is larger than 300 square feet, it takes a lot more time to dig, is more difficult to level and will cost more to complete.

The size of a rain garden will depend on

- how deep the garden will be,
- what type of soils the garden will be planted in, and
- how much roof and/or lawn will drain to the garden.

These considerations, along with the sizing factor from the tables on page 9, will determine the surface area of the rain garden.

Digging with a rented backhoe.



### Guidelines are not rules!

The sizing guidelines described in this manual are based on a goal of controlling 100% of the run-off for the average rainfall year, while keeping the size of the rain garden reasonable. Establishing a 100% run-off goal helps compensate for some of the errors that creep into the design and construction of any rain garden.

If you follow the guidelines in the manual and decide the calculated surface area is just too large for your goals, it is perfectly acceptable to make the rain garden smaller. The rain garden can be up to 30% smaller and still control almost 90% of the annual run-off. On the other hand, it is fine to make the rain garden bigger than the guidelines indicate.

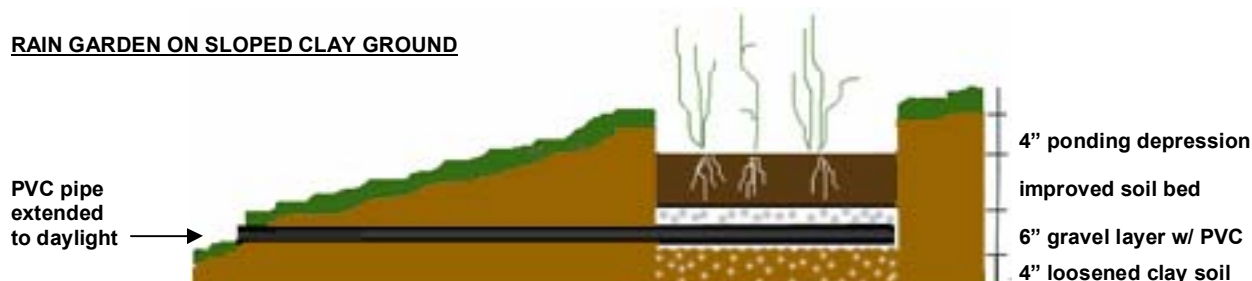
**How deep should the rain garden be?** The depression for your rain garden should be 4 inches below the turf level of your lawn. Deeper than that might pond water too long, look like a hole in your yard, and cause a tripping hazard. A rain garden less than 4 inches deep will need an excessive amount of surface area to provide enough water storage to infiltrate larger storms.

In Rockbridge County, the soils are mostly clay. That complicates the creation of rain gardens, because clay soils are compact and drainage is poor. Only a few are fortunate to have a spot for your rain garden in sandy soil, i.e. river bottom land.

**To determine the type of soil in your yard**, dig a hole about 6 inches deep where the rain garden is to go and fill the hole with water. If the water takes more than 24 hours to soak in, follow the directions for clay soils.

**For clay soils:** To prepare the plant bed for a rain garden in clay soil, you will need to excavate to a level of 2 feet for gardens to be planted with only grasses and flowers (up to 3 feet if you intend to plant shrubs), then refill with the recommended materials to allow sufficient infiltration.

#### RAIN GARDEN ON SLOPED CLAY GROUND

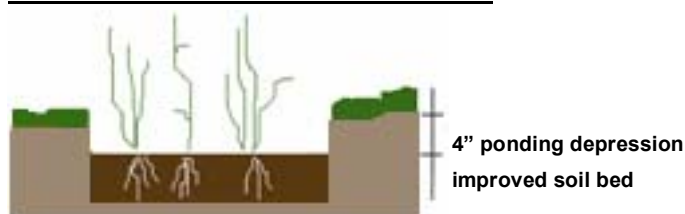


After digging to a depth of 2 feet (or more), replace about 4 inches of loosened clay soil. On top of the loosened soil, layer about 6 inches of size 57 or larger gravel. It is always beneficial to lay PVC drainage pipe/pipes within the gravel bed, and run the pipe in a level or gradually down-sloped trench until it meets daylight as pictured. If your rain garden site is so flat that it requires a great deal of pipe to reach daylight, running pipe may be impractical or cost prohibitive. In this case, instead of running pipe, dig your rain garden deeper in order to increase the gravel layer to no less than 8 inches.

Next, cover the gravel bed with a layer of landscape cloth to prevent soil from clogging the gravel. On top of the landscape cloth, refill the rain garden with a soil mix until you are within 4 inches of the turf level of your lawn. This soil mix should be 80% sand, 10% topsoil, and 10% peat moss (or other organic media). Save your extra clay soil to create a berm if needed to level the ponding area (see page 13), or for other landscape projects.

**For sandy soils:** To prepare the plant bed for a rain garden in sandy soil, you will need to excavate to a level of 1.5 feet for gardens to be planted with only grasses and flowers (up to 2.5 feet if you intend to plant shrubs). Refill to within 4 inches of turf level using original sandy soil lightened with 15% peat moss or other organic media. Save your remaining soil to create a berm if needed to level the ponding area (see page 13), or for other landscape projects.

#### RAIN GARDEN ON FLAT SANDY GROUND





**How big is the area draining to the rain garden?** The next step in determining your rain garden size is to find the area that will drain to the rain garden. As the size of the drainage area increases, so should the size of the rain garden. There is some guesswork in determining the size of the drainage area, especially if a large part of the lawn is up-slope from the garden.

### **Rain gardens less than 30 feet from the downspout**

In this case, where the rain garden is close to the house, almost all water will come from the roof downspouts. Many houses have four downspouts, each taking about 25% of the roof's runoff. If desired, multiple downspouts can be connected with PVC pipe in order to feed into one rain garden. Calculate the per cent of run-off based on the number of downspouts that feed into the rain garden.

**If the rain garden is far from the house, and you don't want a swale or downspout cutting across the lawn, run a PVC pipe underground from the downspout to the rain garden. In this case, do calculations as for a rain garden less than 30 feet from the house.**

Next find your home's footprint, the area of the first floor. If you don't already know it, use a tape measure to find your house's length and width. Multiply the two together to find the approximate area of your roof.

Finally, multiply the roof area by the per cent of the roof that feeds to the downspouts that feed into the rain garden. This is the roof drainage area.

### **Rain gardens more than 30 feet from the downspout**

If there's a significant area of lawn uphill that will also drain to the rain garden, add this lawn area to the roof drainage area. First find the roof drainage area using the steps above for a rain garden less than 30 feet from the down spout.

Then identify the part of the lawn sloping into the rain garden by standing where your rain garden will be and looking up toward the house. Next, calculate the area of the lawn that will drain to the rain garden. Measure the length and width of the uphill lawn, and multiply them to find the lawn area.

Add the lawn area to the roof drainage area to find the total drainage area.

### **EXAMPLE**

Todd's house is 60 feet by 40 feet, so the roof area is 2400 square feet. He estimates that the downspout collects water from 25% of the roof, so he multiplies 2400 by 0.25 to get a downspout drainage area of 600 square feet.

**Roof Area: 60 ft by 40 ft = 2400 square ft.**

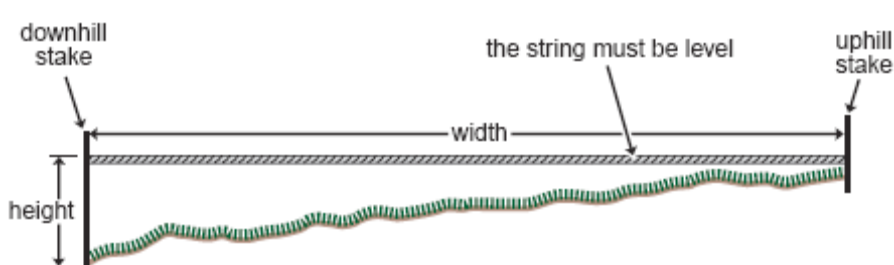
**Drainage Area: 2400 square ft. x 0.25 = 600 square ft.**

## Your rain garden needs to be level

In order for your rain garden to function properly, you will need to level the ponding and drainage areas of the site. To determine level:

1. Drive a stake into the ground on the uphill side, and another on the downhill side about 15 feet away.
2. Tie a string to the bottom (ground level) of the uphill stake, and run it to the downhill stake.
3. Level the string using a line level or carpenter's level, and tie the string to the downhill stake at that height.
4. Measure the width (in inches) between the two stakes.
5. Measure the height (in inches) on the downhill stake between the ground and the string.
6. Divide the height by the width and multiply the result by 100 to find the lawn's per cent slope.

This manual's rain garden size and depth calculations are based on a slope of no more than 5%. If your lawn has a slope of more than 5%, the depth of your garden should increase, and the infiltration layers should be corre-



spondingly deeper. On a steeper slope, it may be necessary to bring in extra topsoil to bring the downhill side level with the uphill side. We do not recommend do-it-yourselfers siting a rain garden on a slope of more than 12% (that's a job for a professional landscaper).

## Using the rain garden size factors

Having estimated the drainage area, determined your soil type and the depth for your garden, you're ready to calculate your rain garden's surface area using the factors below. Use Table 1 if the rain garden is less than 30 feet from the downspout, and Table 2 if it's more than 30 feet from the downspout.

**TABLE 1**

Sandy soil	0.19
Clay soil	0.43

**TABLE 2**

Sandy soil	0.03
Clay soil	0.10

Multiply the size factor by your drainage area. This is the recommended rain garden surface area. If the recommended surface area is more than 300 sq. ft., divide it into two smaller gardens.

### ✓ EXAMPLE

Todd's rain garden is less than 30 feet from the downspout, and his lawn has a 5% slope, so he will have a 6-inch deep rain garden. His lawn is silty, so Table 1 recommends a size factor of 0.25. He multiplies the downspout drainage area, 600 square feet, by 0.25 to find the recommended rain garden area, 150 square feet.

$$600 \text{ square ft. by } 0.25 = 150 \text{ square ft.}$$



Run-off flows into a new garden before plants are fully grown.

### How long and wide should your rain garden be?

Before building the rain garden, think about how it will catch water. Run-off will flow out of a downspout and should spread evenly across the entire length of the rain garden. The garden must be as level as possible so water doesn't pool at one end and spill over before it has a chance to infiltrate.

The longer side of the garden should be perpendicular to the uphill slope and the downspout. This way the garden catches as much water as possible. However, the garden should still be wide enough for the water to spread evenly over the whole bottom and to provide the space for a variety of plants. A good rule of thumb is that the rain garden should be about twice as long (perpendicular to the slope) as it is wide.

When choosing the length of your garden, think about the slope of the lawn. Wide rain gardens and rain gardens on steep slopes will need to be dug very deep on one end in order to become level. If the rain garden is too wide, it may be necessary to bring in additional soil to fill up the downhill side. Experience shows that making a rain garden about 10 feet wide is a good compromise between the effect of slope and how deep the rain garden should be.

To determine the length of the rain garden:

1. Pick the best rain garden width for your lawn and landscaping.
2. Divide your predetermined rain garden area (page 9) by the chosen width to find your rain garden's length.

### ✓ EXAMPLE

Todd wants a 10-foot wide rain garden, so he divides 150 by 10 to find the rain garden length, 15 feet.

$$\frac{\text{rain garden area}}{\text{width}} = \text{length} \quad \frac{150 \text{ ft}^2}{10 \text{ ft}} = 15 \text{ ft}$$

### Choose a size that's best for your yard

Remember that these are only guidelines. The size of the rain garden also depends on how much money you want to spend, how much room you have in your yard, and how much run-off you want to control. Again, you can reduce the size of your rain garden by as much as 30% and still control almost 90% of the run-off. If the sizing table suggests that the rain garden be 200 sq. ft., but there is only enough room for a 140-sq.-ft. rain garden, that's fine. A smaller rain garden will usually work to control most run-off, although some bigger storms might over-top the berm.



## • • • • • Step 2

## Building Your Rain Garden

Now that the size and place for the rain garden are set, it's time to get a shovel and start digging. **BEFORE you start digging, call Miss Utility at 800-552-7001** to ensure there are no gas, water or power lines in your path. Working alone, it will take about 6 to 10 hours to dig an average size rain garden, maybe longer if working in clay or rocky spots. With the help of friends and good tools, it will go much faster. Tool recommendations include:

Carpenter's level	Tape Measure
String	Shovels
Trowels	Rakes
Wood stakes at least 2 feet long	
2X4 board at least 6 feet long (opt.)	
Small backhoe w/ caterpillar treads (opt.)	

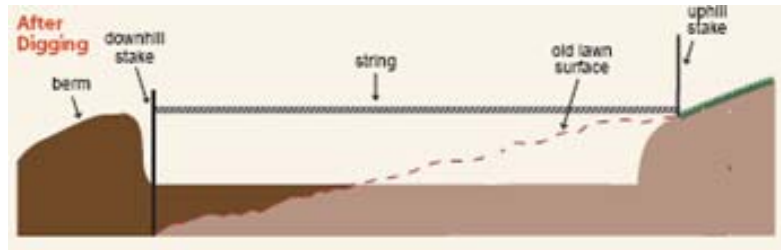
If you are building the rain garden into an existing lawn, digging time can be reduced by killing the grass first. A chemical such as Round-Up can be used, but a more environmentally friendly approach is to place black plastic over the grass in the garden site until the grass dies. The best time to make a rain garden is in the fall before the ground freezes so plants will have time to establish roots over the winter, but spring is also fine.





## Digging the rain garden

While digging the rain garden to the correct depth, heap the soil around the edge where the berm will be. (The berm is a low wall around 3 sides of the rain garden that holds the water in during a rain storm. See page 13.) On a sloping lawn, use the cut and fill method pictured (level the downhill side of the rain garden using soil from the uphill side). Additional topsoil might be needed for the berm.



Shovel soil from uphill to downhill to level rain garden and build up berm.

**One way to level the rain garden is to just eyeball it. To do it more accurately, follow these steps:**

**When the whole area has been dug out to about the right depth, lay a 2X4 board in the rain garden with a carpenter's level sitting on it. Find the spots that aren't flat. Fill in the low places and dig out the high places.**

**Move the board to different places and in different directions, filling and digging as necessary to make the surface level.**

**When the rain garden is as level as possible, rake the soil smooth.**



The perimeter of the garden can be defined with string or garden hose before digging.

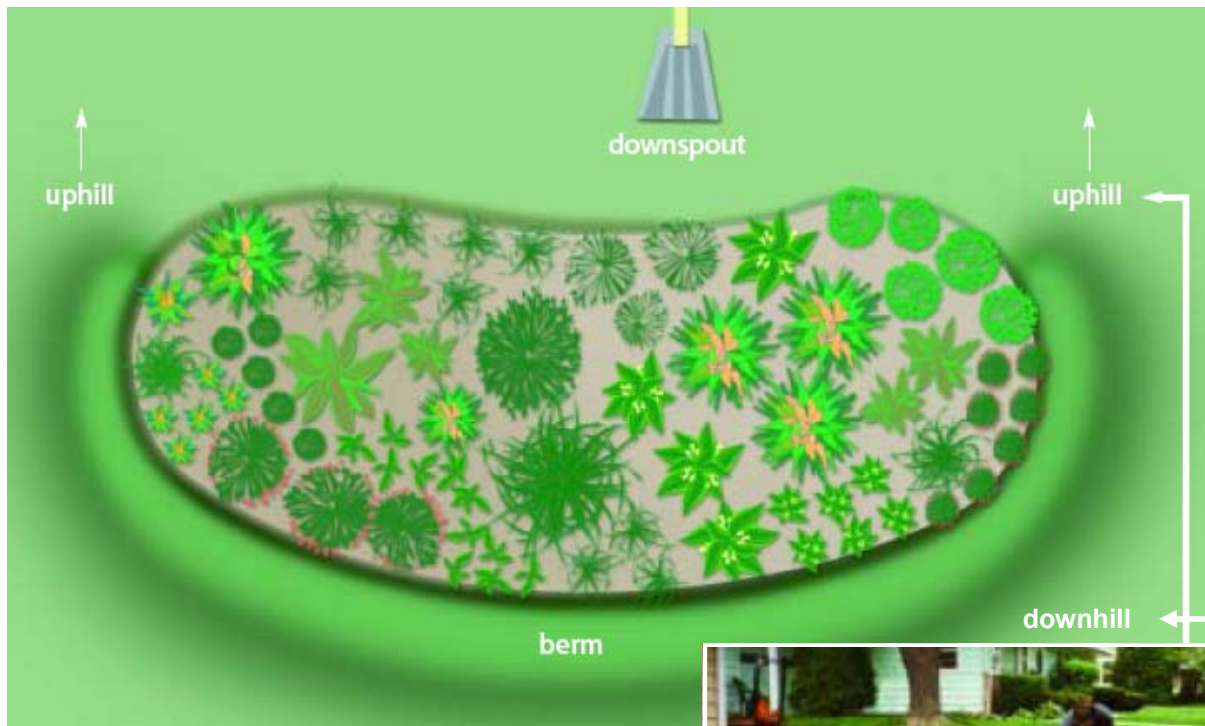
Start by laying string around the perimeter of your rain garden. Remember that the berm will go outside the string. Next, put stakes along the uphill and downhill sides, lining them up so that each uphill stake has a stake directly downhill. Place one stake every 5 feet along the length of the rain garden.

Start at one end of the rain garden and tie a string to the uphill stake at ground level. Tie it to the stake directly downhill so that the string is level. Work in 5 foot sections with only one string at a time, otherwise the strings will become obstacles.

Start digging at the uphill side of the string. Measure down from the string and dig until you reach the desired depth (see page 7).

If the lawn is almost flat, you will be digging at the same depth throughout the rain garden and using the leftover soil for the berm. If the lawn is sloped, the uphill side of the rain garden will need to be dug out noticeably more than the downhill side, and some of the soil from the uphill side can be used on the downhill side to make the garden level. Continue digging one section at a time until your rain garden is as level as possible.

Once the rain garden bed is the necessary depth, it is time to refill with loosened soil, a layer of gravel, and a layer of soil mix as per instructions and diagram on page 7.



The top of the downhill part of the berm should come up to the same elevation as the entry to the rain garden at the uphill end.

### Making the berm

Water flowing into the rain garden will naturally try to run off the downhill edge. A berm is needed to keep the water in the garden. The berm is a wall across the bottom and up the sides of the rain garden. The berm will need to be highest at the downhill side. Up the sides of the rain garden, the berm will become lower and gradually taper off by the time it reaches the top of the rain garden.



On a gentle slope, soil from digging out the garden can be used to create the berm. This rain garden is 4 inches deep.

When there isn't much slope to your rain garden site, there should be plenty of soil left from digging out your rain garden to build up the berm. On a steeper slope, most of the soil from the uphill part of the garden was probably used to fill in the downhill half (see diagram on page 12), and soil will have to be brought in from somewhere else to build up the berm. After sloping the berm into a smooth ridge about a foot across, stomp on it. It is very important to have a well-compacted berm, so stomp hard. The berm should have very gently sloping sides. This helps smoothly integrate the rain garden with the surrounding lawn and also makes the berm less susceptible to erosion.

To prevent erosion, cover the berm with mulch or plant it with grass seed. Use straw or erosion control mat to protect the berm from erosion while the grass is taking root.

Note: If the downspout is a few feet from the entry to the rain garden, make sure the water runs into the garden by either digging a shallow grass swale or attaching an extension to the downspout.



## Tips for designing your rain garden

While rain gardens are a highly functional way to help protect water quality, they are also gardens and should be an attractive part of your yard and neighborhood. Think of the rain garden in the context of your home's overall landscape design. Here are a few tips:

When choosing native plants for the garden, it is important to consider the height of each plant, bloom time and color, and its overall texture. Use plants that bloom at different times to create a long flowering season. Mix heights, shapes, and textures to give the garden depth and dimension. This will keep the rain garden looking interesting even when few flowers are in bloom.

When laying plants out, randomly clump individual species in groups of 3 to 7 plants to provide a bolder statement of color. Make sure to repeat these individual groupings to create cohesion in planting. This will provide a more traditional formal look to the planting.

Try incorporating a diverse mixture of sedges, rushes and grasses with your flowering species. This creates necessary root competition that will allow plants to follow their normal growth patterns and not outgrow or out-compete other species. In natural areas, a diversity of plant types not only adds beauty but also creates a thick underground root matrix that keeps the entire plant community in balance. In fact, much of the plant mass develops underground. Once the rain garden has matured and your sedges, rushes and grasses have established a deep, thick root system, there will be less change in species location from year to year, and weeds will naturally decline.

Finally, consider enhancing the rain garden by using local or existing stone, ornamental fences, trails, garden benches, or additional wildflower plantings around the perimeter. This will help give the new garden an intentional and

cohesive look as well as provide a feeling  
of neatness that you and your  
neighbors will enjoy.





### • • • • • Step 3 Planting & Maintaining Your Rain Garden

**Planting the rain garden is the fun part!** A list of suggested plants is included at the end of this manual. Use these for ideas, but don't be afraid to be creative – there's no single best way to plant a rain garden. Anyone who has ever done any gardening will have no problem planting a rain garden, but a few basics are listed below.

#### Planting the rain garden

Select plants that have a well established root system. Usually one- or two-year-old plants will have root systems that are beginning to circle or get matted. (Note: Use only plants that were originally nursery propagated; do not collect plants from the wild.)

Make sure to have at least a rough plan for which plants will be planted where. Lay out the plants as planned one foot apart in a grid pattern, keeping them in containers if possible until they are actually planted. This will prevent the plants drying out before they get into the ground.

Dig each hole twice as wide as the plant plug and deep enough to keep the crown of the young plant level with the existing grade (just as it was growing in the cell pack or pot). Make sure the crown is level, and then fill the hole and firmly tamp around the roots to avoid air pockets.

Apply double shredded mulch evenly over the bed approximately two inches thick, but avoid burying the crowns of the new transplants. Mulching is usually not necessary after the second growing season unless the mulched look is desired.

Stick plant labels next to each individual grouping. This will help distinguish the young native plants from non-desirable species (weeds) as you weed the garden.

As a general rule, plants need one inch of water per week. Water immediately after planting and continue to water twice a week (unless rain does the job) until the plugs are established.

You should not have to water your rain garden once the plants are established. Plugs can be planted anytime during the growing season as long as they get adequate water.





## Maintaining the rain garden

Weeding will be needed for the first couple of years. Remove by hand only those plants you are certain are weeds. Try to get out all of the roots of the weedy plants. Weeds may not be a problem in the second season, depending on the variety and tenacity of the weeds present. In the third year and beyond, the native grasses, sedges, rushes and wildflowers will begin to mature and out-compete the weeds. Weeding isolated patches might still be needed on occasion.

After each growing season, the stems and seed heads can be left for winter interest, wildlife cover and bird food. Once spring arrives and new growth is 4-6 inches tall, cut all tattered plants back. If the growth is really thick, hand-cut the largest plants and then use a string trimmer to mow the planting back to a height of 6-8 inches. Dead plant material can also be removed with a string trimmer or weed whacker (scythe) and composted or disposed of as appropriate.



The best way to knock back weeds and stimulate native plant growth is to mow the dead plant material in the rain garden. If the mowing deck of your lawn mower can be raised to a height of 6 inches or so, go ahead and simply mow your rain garden. Then, rake up and compost or properly dispose of the dead plant material.

If the mower deck won't raise that high, use a string trimmer or a weed-eater to cut the stems at a height of 6-8 inches. On thicker stems such as golden rod, a string trimmer may not be strong enough. For these, use hand clippers or pruning shears to cut the individual stems.

## What does a rain garden cost?

The cost of a rain garden will vary depending on who does the work and where you get the plants. If you do your own digging and soil preparation, and divide plants from your other gardens or a neighbor's garden, it can cost very little. If you do the labor but purchase your plants, your rain

garden will cost \$3 or \$4 a square foot. If a landscaper does everything, it can cost \$10 to \$15 a square foot.

It might seem easiest to sow native wildflower seed over the

whole rain garden, but experience has taught us that seeding a rain garden has its problems. Protecting the seeds from wind, washing away, weeds and garden pests is very difficult, resulting in a rain garden that's mostly weeds. Growing plugs from seeds indoors or dividing existing plants is much better. If you grow plugs, start them about 4 months ahead of time. When the roots have filled the pot and the plants are healthy, they are ready to transplant to your rain garden.

Plant recommendations  
for full to partial shade

# Rain Gardens

CLAY SOILS		SANDY SOILS	
COMMON NAME	SCIENTIFIC NAME	COMMON NAME	SCIENTIFIC NAME
<b>Ferns</b>	<b>Ferns</b>	<b>Ferns</b>	<b>Ferns</b>
Evergreen woodfern	Dryopteris intermedia	Evergreen woodfern	Dryopteris intermedia
Sensitive fern	Onoclea sensibilis	Interrupted fern	Osmunda claytoniana
<b>Flowering plants/grasses</b>	<b>Flowering plants/grasses</b>	<b>Flowering plants/grasses</b>	<b>Flowering plants/grasses</b>
Virginia wild rye	Elymus virginicus	Pennsylvania sedge	Carex pensylvanica
Common boneset	Eupatorium perfoliatum	Virginia wild rye	Elymus virginicus
Virginia bluebells	Mertensia virginica	Jack-in-the-pulpit	Arisaema triphyllum
Bur sedge	Carex Grays	Common boneset	Eupatorium perfoliatum
Tall bellflower	Campanula Americana	Alumroot	Heuchera americana
Hop sedge	Carex lupulina	Zig-zag goldenrod	Solidago flexicaulis
		Golden Alexander	Zizia aurea
		Bur sedge	Carex Grays
		Alumroot	Heuchera americana
		Hop sedge	Carex lupulina
		Woodland phlox	Phlox divaricata
<b>Shrubs</b>	<b>Shrubs</b>	<b>Shrubs</b>	<b>Shrubs</b>
Buttonbush	Cephalanthus occidentalis	Wild hydrangea	Hydrangea arborescens
Sweet pepperbush	Clethra alnifolia	Buttonbush	Cephalanthus occidentalis
Red-panicked dogwood	Cornus racemosa	Winterberry holly	Ilex verticillate
Inkberry	Ilex glabra	Sweet pepperbush	Clethra alnifolia
Virginia sweetspire	Itea virginica	Inkberry	Ilex glabra
Winterberry holly	Ilex verticillate	Highbush blueberry	Vaccinium corybosum
Common elderberry	Sambucus canadensis	Spicebush	Lindera benzoin



The plant list on pages 18 and 19 is provided by **Boxerwood Gardens** in keeping with recommendations published by the U. S. Fish and Wildlife Service for use in the Chesapeake Bay Watershed region (that's us). Boxerwood's Garden Steward and landscape specialist, Karen Bailey, advises that repeated use of just a few plant types will make weeding easier while your plants are getting established, as well as create a more pleasing rain garden appearance. Bailey also encourages planting sedges and rushes, particularly when hard metals and other pollutants are present in the soil.

## RAIN GARDEN PLANTING TIP

Adding some sort of stepping stones such as the log slices pictured here will make maintenance simpler in a large rain garden.



Plant recommendations  
for full to partial sun

# Rain Gardens

CLAY SOILS		SANDY SOILS	
COMMON NAME	SCIENTIFIC NAME	COMMON NAME	SCIENTIFIC NAME
<b>Ferns</b>	<b>Ferns</b>	<b>Ferns</b>	<b>Ferns</b>
Bracken fern	Pteridium aquilinum	Bracken fern	Pteridium aquilinum
<b>Flowering plants/grasses</b>	<b>Flowering plants/grasses</b>	<b>Flowering plants/grasses</b>	<b>Flowering plants/grasses</b>
Common boneset	Eupatorium perfoliatum	Common boneset	Eupatorium perfoliatum
Big bluestem	Andropogon gerardii	Big bluestem	Andropogon gerardii
Switchgrass	Panicum virgatum	Switchgrass	Panicum virgatum
Indiangrass	Sorghastrum nutans	Indiangrass	Sorghastrum nutans
Swamp milkweed	Asclepias incarnate	Butterfly weed	Asclepias tuberosa
Joe Pye weed	Eupatorium maculata	Joe Pye weed	Eupatorium maculata
Cardinal flower	Lobelia cardinalis	Hyssop-leaved thoroughwort	Eupatorium hyssopifolium
Foxglove beardtongue	Penstemon digitalis	Swamp sunflower	Helianthus angustifolius
Black-eyed Susan	Rudbeckia hirta	Foxglove beardtongue	Penstemon digitalis
<b>Shrubs</b>	<b>Shrubs</b>	<b>Shrubs</b>	<b>Shrubs</b>
Buttonbush	Cephalanthus occidentalis	Buttonbush	Cephalanthus occidentalis
Silky dogwood	Cornus amomum	Silky dogwood	Cornus amomum
Red-panicked dogwood	Cornus racemosa	Winterberry holly	Ilex verticillata
Inkberry	Ilex glabra	Inkberry	Ilex glabra
Virginia sweetspire	Itea virginica	Tassel-white	Itea virginica
Ninebark	Physocarpus opulifolius	Common elderberry	Sambucus canadensis
Winterberry holly	Ilex verticillata	Highbush blueberry	Vaccinium corybosum
Common elderberry	Sambucus canadensis		

## MORE PLANTING TIPS

Keep in mind that design possibilities for rain gardens are almost limitless. Surprising spaces can accommodate an effective and attractive rain garden. The one to the right is being created in a narrow side yard between homes.



Planning and planting with friends, family and neighbors can turn the work into fun. Sketching the garden on graph paper before you begin planting allows each gardener to manage a section efficiently.



# Rain Gardens

For more information, please contact:  
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To tour local rain gardens, please contact:  
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City of Lexington  
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To schedule a rain garden presentation  
for your group or organization,  
please email: [kitty@rockbridge.net](mailto:kitty@rockbridge.net)

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